

(V)

wherein:

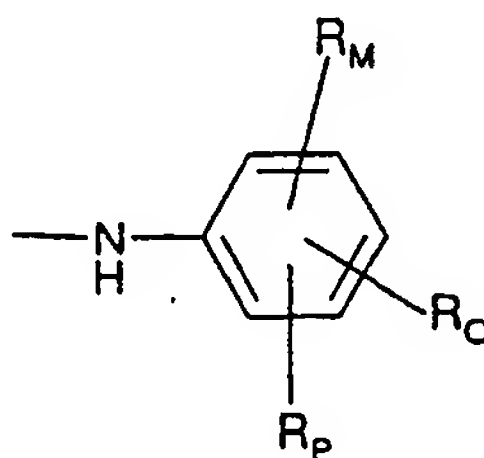
the carbon atom of formula (V) is in position 5 of the ring of formula (IV);

Q is -CH- or one oxygen atom;

$q_A, q_1, q_2, q_3, q_4$ , are integers and independently the one from the other are 1 or 0;  $q_2 = q_3 = q_4 = 0$  when the ring in formula (IV) is aromatic and  $Q = -CH-$ ;  $q_2 = q_3 = q_4 = 1$  when the ring of formula (IV) is a saturated ring with 6 atoms wherein the heteroatom is  $Q = O$ , and is in position 6 of the ring;

when  $q_A = 1$  and G is the group of formula (Vg)  $R_a$  and  $R_b$ , equal or different, are hydrogen,  $C_1-C_3$  alkyl, preferably methyl;

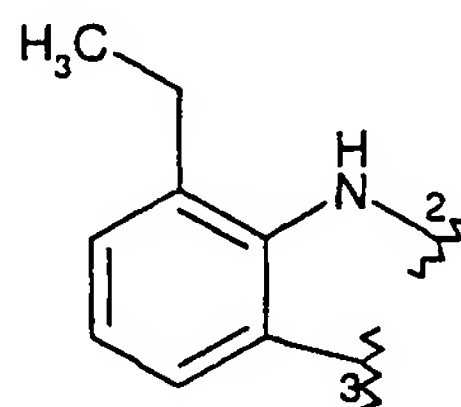
$R_c$  in formula (IV) is hydrogen,  $C_1-C_3$  alkyl, or the following radical:



(VI)

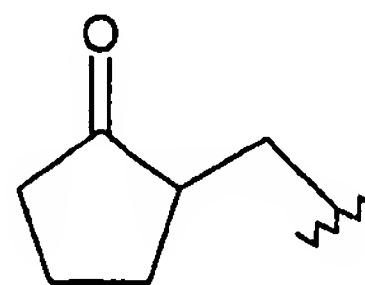
wherein  $R_M$ ,  $R_O$ ,  $R_P$ , equal or different, can be H, halogen preferably chlorine,  $C_1$ - $C_3$  alkyl preferably methyl,  $CF_3$ ;

$R_g$  is hydrogen or  $-OCH_3$ , when the ring of fig. (IV) has 6 atoms; or it is an electronic doublet when the ring having 6 atoms is aromatic and  $M$  = nitrogen; or it is a p.chlorobenzoyl radical when  $q_1 = 0$  and  $M$  = nitrogen and the ring of fig. (IV) is aromatic; or  $R_c$  and  $R_g$  taken together are such to form the following radical:



(VII)

$R_d$  in formula (IV) is hydrogen, hydroxyl,  $C_1$ - $C_4$  alkyl, optionally branched, phenyl, or the following radical:

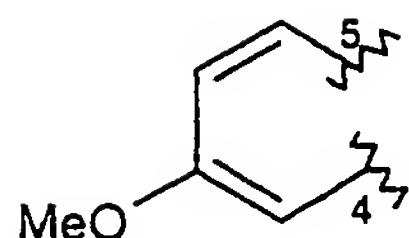


(VIII)

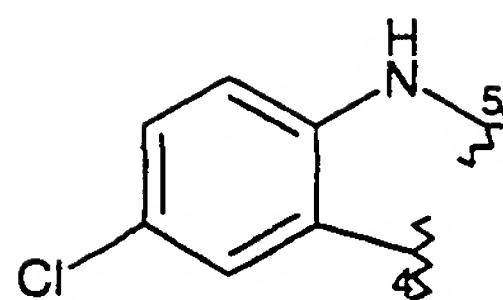
$R_{d1}$  = hydrogen when  $q_2 = 1$ ;

$R_e$  (formula V) = hydrogen, halogen preferably F, or benzoyl; or

$R_d$  and  $R_e$  taken together are such to form the following radicals:



(IX)



(X)

$R_{e1}$  (formula V) = H when  $q_3 = 1$ ;

$R_N$  (formula IV) =  $C_1-C_3$  alkyl preferably ethyl when  $q_4 = 1$ ;

$T_1 = (CO)_t$  or  $(X)_{t'}$ , wherein  $X = O, S, NR_{1c}$ ,  $R_{1c}$  is H or a linear or branched alkyl, having from 1 to 5 carbon atoms,  $t$  and  $t'$  are integers and equal to zero or 1, with the proviso that  $t = 1$  when  $t' = 0$ ;  $t = 0$  when  $t' = 1$ ;

$B = -T_B-X_2-T_{BI}-$  wherein

$T_B$  and  $T_{BI}$  are equal or different;

$T_B = (CO)$  when the reactive function in the precursor drug is  $-OH$  or  $-NH_2$ ;  $T_B = X$ , as above, when the reactive function in the precursor drug is  $-COOH$ ;

$T_{BI} = (CO)_{tx}$  or  $(X)_{txx}$ , wherein  $tx$  and  $txx$  have the value of 0 or 1; with the proviso that  $tx = 1$  when  $txx = 0$ ,  $tx = 0$  when  $txx = 1$ ;  $X$  is as above defined;

$X_2$  is a bivalent linking group as defined below;

$C$  is the bivalent radical  $-T_c-Y-$  wherein

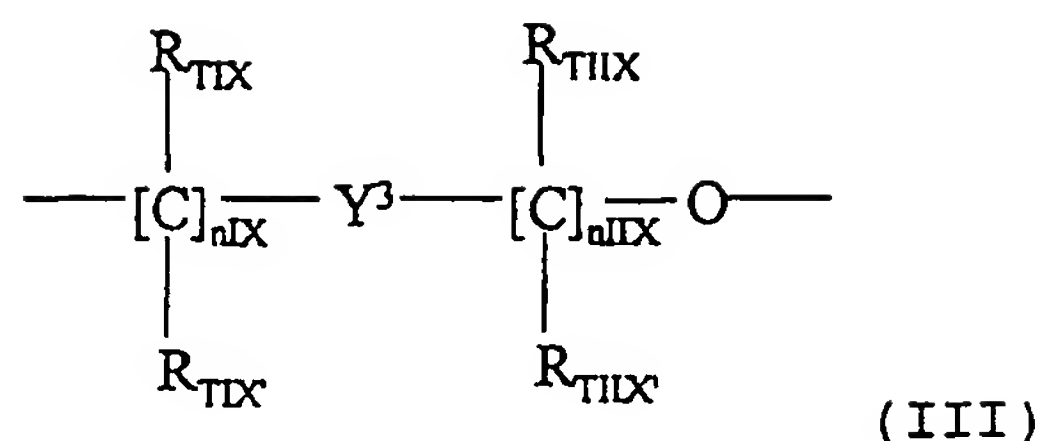
when  $b0 = c0 = 1$ :  $T_c = (CO)$  when  $tx = 0$ ,  $T_c = X$  when  $txx = 0$ ,  $X$  being as above defined,

when  $b0 = 0$ :  $T_c = (CO)$  when  $t = 0$ ,  $T_c = X$  when  $t' = 0$ ,  $X$  being as above defined,

when  $c0 = 0$ :  $tx = 0$ ,  $T_{BI} = X = -O-$ ;

$Y$  has one of the following meanings:

$Y_p$  :



wherein:

$n_{IX}$  is an integer from 0 to 3, preferably 1;

$n_{IIX}$  is an integer from 1 to 3 preferably 1;

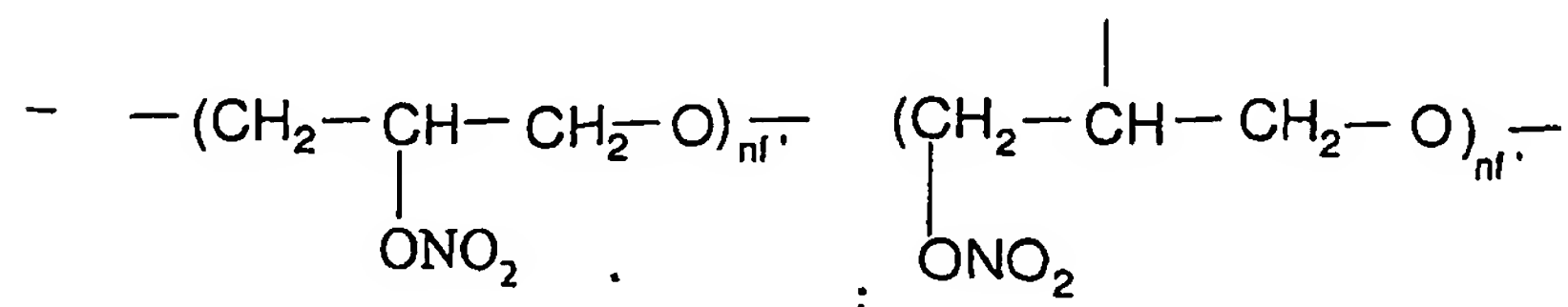
$R_{TIX}$ ,  $R_{TIX'}$ ,  $R_{TIIX}$ ,  $R_{TIIX'}$ , equal to or different from each other are H or linear or branched  $C_1$ - $C_4$  alkyl; preferably  $R_{TIX}$ ,  $R_{TIX'}$ ,  $R_{TIIX}$ ,  $R_{TIIX'}$  are H.

$Y^3$  is a heterocyclic ring containing one or two nitrogen atoms, said heterocyclic ring being a saturated, unsaturated or aromatic ring, having 5 or 6 atoms;

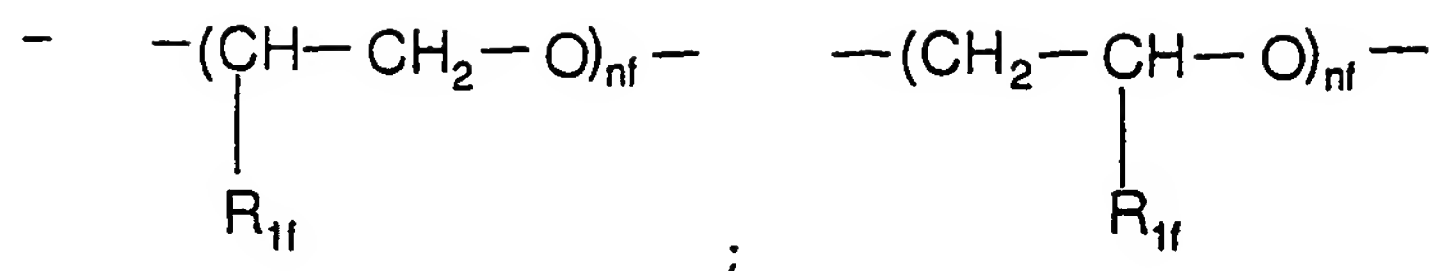
or Y may be:

$Y_0$ , selected from the following:

- an alkyleneoxy group  $R'O$  wherein  $R'$  is a linear or branched when possible  $C_1$ - $C_{20}$ , preferably having from 2 to 6 carbon atoms, or a cycloalkylene having from 5 to 7 carbon atoms, in the cycloalkylene ring one or more carbon atoms can be substituted with heteroatoms, the ring can have side chains of  $R'$  type,  $R'$  being as above; or one of the following groups:

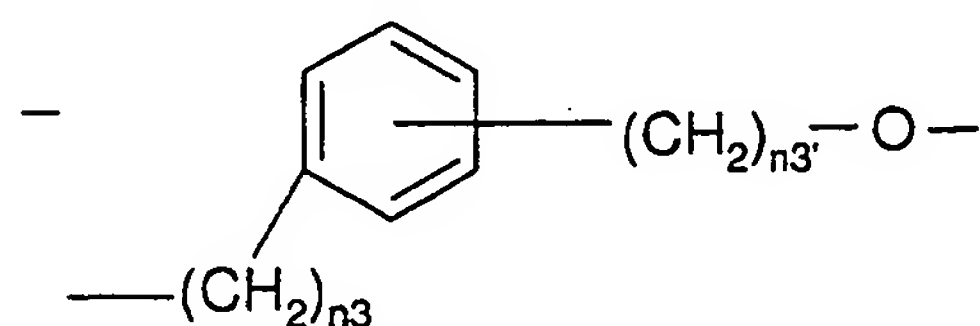


wherein  $nf'$  is an integer from 1 to 6 preferably from 1 to 3;

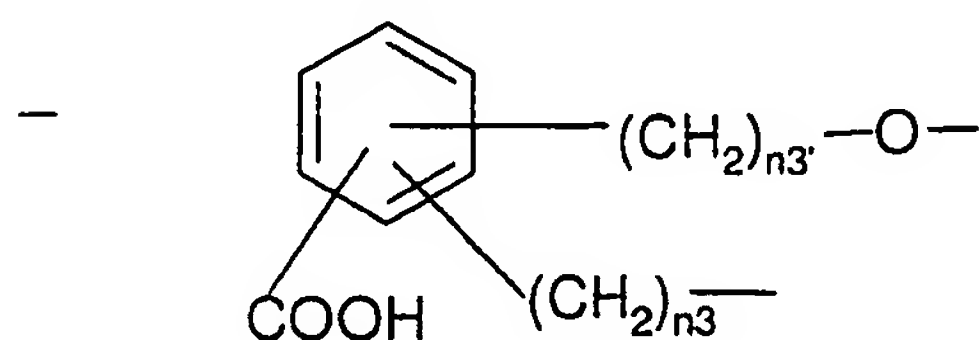


wherein  $R_{1f} = H, CH_3$  and  $nf$  is an integer from 1 to 6; preferably from 2 to 4;

or Y is  $Y_{Ar}$  and is selected from the following:



wherein n3 is an integer from 0 to 3 and n3' is an integer from 1 to 3;



wherein n3 and n3' have the above meaning;

with the proviso that in formula (I) when  $b_0 = 0$  and the bivalent radical Y of C is  $R'O$ , the radical R of formula (IV) of the drug is ferulic acid or flurbiprofen;

$X_2$ , bivalent radical, is such that the corresponding precursor of  $B - T_B - X_2 - T_{B1}$  wherein the free valences of  $T_B$  and  $T_{B1}$  are each saturated with  $OZ$ , with  $Z$  or with  $-N(Z^I)(Z^{II})$ , being:

- $Z = H, C_1-C_{10}$  , preferably a linear or branched when possible  $C_1-C_5$  alkyl,
- $Z^I, Z^{II}$  equal or different have the values of  $Z$  as above, depending on that  $T_B$  and/or  $T_{BI} = CO$  or  $X$ , in function of the values of  $t, t', tx$  and  $txx$ ;

it satisfies the following test (test 4): analytical de-

termination carried out by adding aliquots of methanolic solutions at  $10^{-4}$  M concentration of the precursor of B to a methanolic solution of DPPH (2,2-diphenyl-1-picrylhydrazyl); after having maintained the solution at room temperature and sheltered from light for 30 minutes, the absorbance of the test solution and of a solution containing only DPPH in the same amount is read, at the wavelength of 517 nm; then the inhibition percentage of the precursor of B towards the radical production induced by DPPH is determined by means of the formula:

$$(1 - A_s/A_c) \times 100$$

wherein  $A_s$  and  $A_c$  are respectively the absorbance values of the solution containing the test compound and DPPH and that of the solution containing only DPPH.

The acceptance criterion of the precursor compounds of B according to this test is the following: test 4 is satisfied by the precursor compounds of B when the inhibition percentage as above defined is higher than or equal to 50%.

2. Use according to claim 1, wherein:

- when in formula (IV)  $q_A = 1$  and G is the group of formula (Vg) wherein  $R_A$  is methyl and  $R_B$  is hydrogen,  $q_2 = q_4 = 0$ ,  $M = C$ , and in formula (V)  $q_1 = 1$ ,  $Q = -CH-$  and  $q_3 = 0$ , the ring of formula (IV) comprising M and Q is an aromatic ring having 6 carbon atoms and the other substituents are as defined hereinafter:
- when  $R_c = R_g = R_e = H$  and  $R_d$  is isobutyl, the so defined precursor drug of R is ibuprofen;
- when  $R_c = R_g = H$  and  $R_d$  is phenyl and  $R_e$  is F, the so defined precursor drug of R is flurbiprofen;

- when  $R_c = R_g = H$  and  $R_d$  and  $R_e$  form together the radical of formula (IX), the so defined precursor drug of R is naproxen;
- when  $R_c = R_g = R_e = H$  and  $R_d$  is the radical of formula (VIII), the so defined precursor drug of R is loxoprofen;
- when  $R_c = R_g = R_d = H$  and  $R_e = \text{benzoyl}$ , the so defined precursor drug of R is ketoprofen;
- when  $R_c = R_g = H$  and  $R_d$  and  $R_e$  form together the radical of formula (X), the so defined precursor drug of R is carprofen;
- when in formula (IV)  $q_1 = 0$ ,  $q_2 = q_4 = 0$ ,  $R_d = R_g = H$ ,  $M = C$ , and in formula (V)  $q_1 = 1$ ,  $Q = -CH-$ ,  $q_3 = 0$ ,  $R_e = H$ , the ring of formula (IV) comprising M and Q is an aromatic ring having 6 carbon atoms and the other substituents are as defined hereinafter:
- when  $R_c$  is the radical of formula (VI) wherein  $R_M = R_p = H$ ,  $R_o = CF_3$  and is in meta position with respect to the  $-NH-$  group, the so defined precursor drug of R is the flufenamic acid;
- when  $R_c$  is the radical of formula (VI) wherein  $R_M = R_p = Cl$  and are in the two ortho positions with respect to the  $-NH-$  group,  $R_o = CH_3$  and is in para position with respect to the  $-NH-$  group, the so defined precursor drug of R is the meclofenamic acid;
- when  $R_c$  is the radical of formula (VI) wherein  $R_M = H$ ,  $R_p = Cl$  and is in meta position with respect to the  $-NH-$  group,  $R_o = CH_3$  in ortho position with respect to the  $-NH-$  group and to the chlorine atom,

the so defined precursor drug of R is the tolfenamic acid;

- when in formula (IV)  $q_A = 0$ ,  $M = N$ ;  $q_2 = q_4 = 0$ ,  $R_d = H$ ; and in formula (V)  $q_1 = 1$ ,  $q_3 = 0$ ,  $R_e = H$ ,  $Q = -CH-$ ;  $R_g$  is the free electronic doublet on the nitrogen atom, the ring of formula (IV) comprising M and Q is a pyridine ring,  $R_c$  is the radical of formula (VI) wherein  $R_M = R_P = H$ ,  $R_O = CF_3$  and is in meta position with respect to the  $-NH-$  group, the so defined precursor drug of R is the niflumic acid;

- when in formula (IV)  $q_A = 1$  and G is the group of formula (Vg) wherein  $R_a = R_b = H$ ;  $M = C$ ,  $R_d = R_g = H$ ,  $q_2 = q_4 = 0$ ; and in formula (V)  $q_1 = 1$ ,  $Q = -CH-$ ,  $R_e = H$ ,  $q_3 = 0$ ; the ring of formula (IV) comprising M and Q is an aromatic ring having 6 carbon atoms;  $R_c$  is the radical of formula (VI) wherein  $R_M = R_P = Cl$  and are in the two ortho positions with respect to the  $-NH-$  group,  $R_O = H$ ; the so defined precursor drug of R is diclofenac;

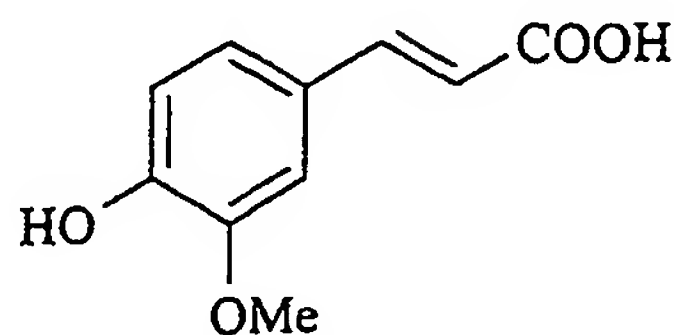
- when in formula (IV)  $q_A = 1$  and G is the group of formula (Vg) wherein  $R_a = R_b = H$ ;  $M = C$ ,  $q_2 = q_4 = 1$ ,  $R_d = R_{d1} = H$ ,  $R_N = \text{ethyl}$ , and in formula (V)  $q_1 = 1$ ,  $q_3 = 1$ ,  $Q = O$ ,  $R_e = R_{e1} = H$ ; the ring of formula (IV) comprising M and Q is a saturated ring having 6 atoms;  $R_g$  and  $R_c$  together form the radical of formula (VII), the so defined precursor drug of radical R is etodolac;

- when in formula (IV)  $q_A = 1$  and G is the group of formula (Vg) wherein  $R_a = R_b = H$ ;  $M = N$   $q_2 = q_4 = 0$ ; and in formula (V)  $q_3 = q_1 = 0$ , the ring in formula (IV) comprising M corresponds to that of pyrrol;  $R_g = p\text{-chlorobenzoyl}$ ;  $R_c = CH_3$ ;  $R_d$  together with  $R_e$  of formula



(V) form the radical of formula (IX), the so defined precursor drug of radical R is indomethacin.

3. Use according to claim 1, wherein when in formula (IV)  $q_A = 1$  and  $G = -HC=CH-$ ,  $q_2 = q_4 = 0$ ,  $M = C$ , and in formula (V)  $q_1 = 1$ ,  $Q = -CH-$ ,  $q_3 = 0$  and  $R_a = H$ , the ring of formula (IV) comprising M and Q is an aromatic ring having 6 carbon atoms;  $R_c = H$ ,  $R_g = OCH_3$ ,  $R_d = OH$ , the so defined precursor drug of radical R is the ferulic acid of formula (IVA)



(IVA)

4. Use according to claims 1-3, wherein the precursor compound of B which satisfies test 4 is selected from the following classes of compounds:
- aminoacids, selected from the following: L-carnosine, anserine, selenocysteine, selenomethionine, penicillamine, N-acetylpenicillamine, cysteine, N-acetylcysteine, glutathione or esters thereof, preferably ethyl or isopropyl ester;
  - hydroxyacids, selected from the following: gallic acid, ferulic acid, gentisic acid, citric acid, caffeic, dihydrocaffeic acid, p-cumaric acid, vanillic acid;
  - aromatic and heterocyclic polyalcohols, selected from the following: nordihydroguaiaretic acid, quercetin, catechin, kaempferol, sulphuretin, ascorbic acid, isoascorbic acid, hydroquinone, gossypol, re-